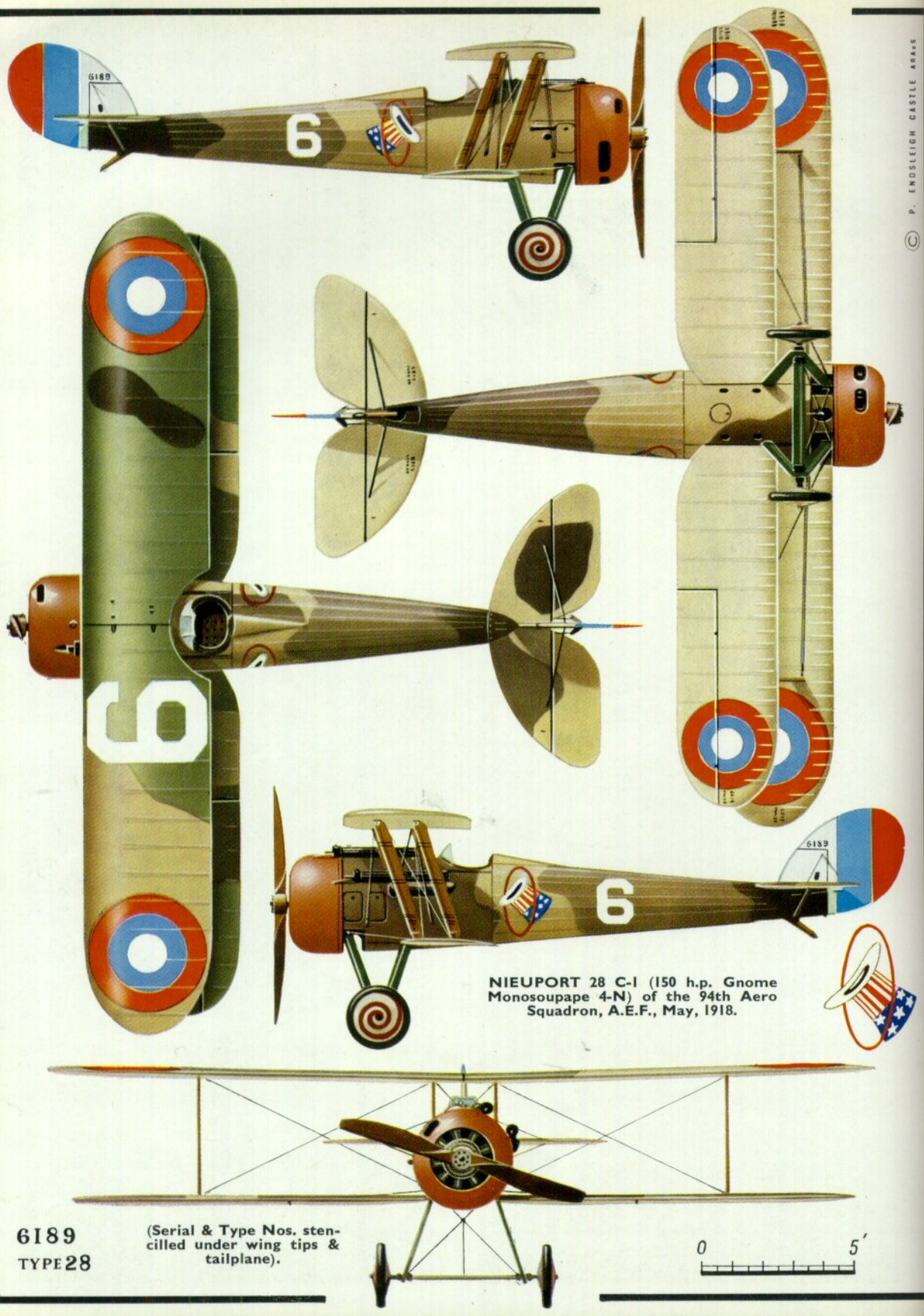
PROFILE
PUBLICATIONS

The Nieuport N.28C-I

NUMBER 79
TWO SHILLINGS



NIEUPORT 28 C-1 (150 h.p. Gnome Monosoupape 4-N) of the 94th Aero Squadron, A.E.F., May, 1918.

6189
TYPE 28

(Serial & Type Nos. stencilled under wing tips & tailplane).

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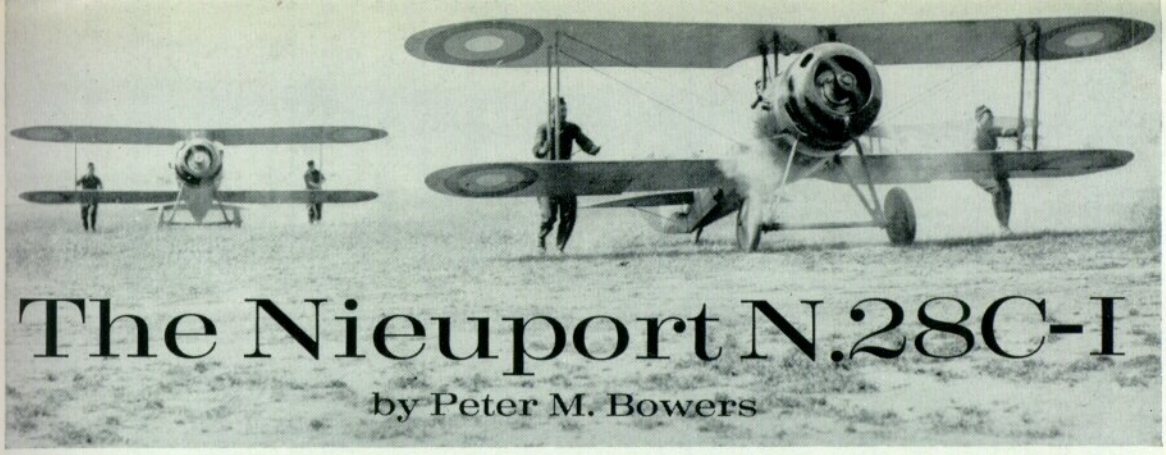
© P. ENDSLEIGH CASTLE ARMS



The Nieuport N.28C-I

by Peter M. Bowers

Production Nieuports of the 95th Aero Squadron, A.E.F., showing the upper wing raised above the fuselage while retaining the dihedral, and the initial application of American white-centre roundels to the underside of the upper wing. Since these machines had no brakes or steerable tailskids and the engines could not be throttled, it was necessary for mechanics to guide them during taxiing by holding on the wing struts. (Photo: U.S. Army Signal Corps)

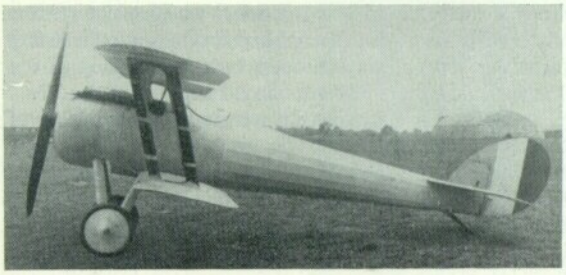
The French Nieuport 28, properly designated N28C-1, is unique in aviation history for having achieved a considerable degree of fame that it didn't really deserve. The design, one of the long and famous line of Nieuport single-seaters, had been rejected as first-line equipment by the French Air Service. However, because of its availability in the absence of more suitable equipment, the 28 was supplied to the first pursuit squadrons of the American Expeditionary Forces early in 1918 and was therefore the first fighting plane to carry American colours into combat.

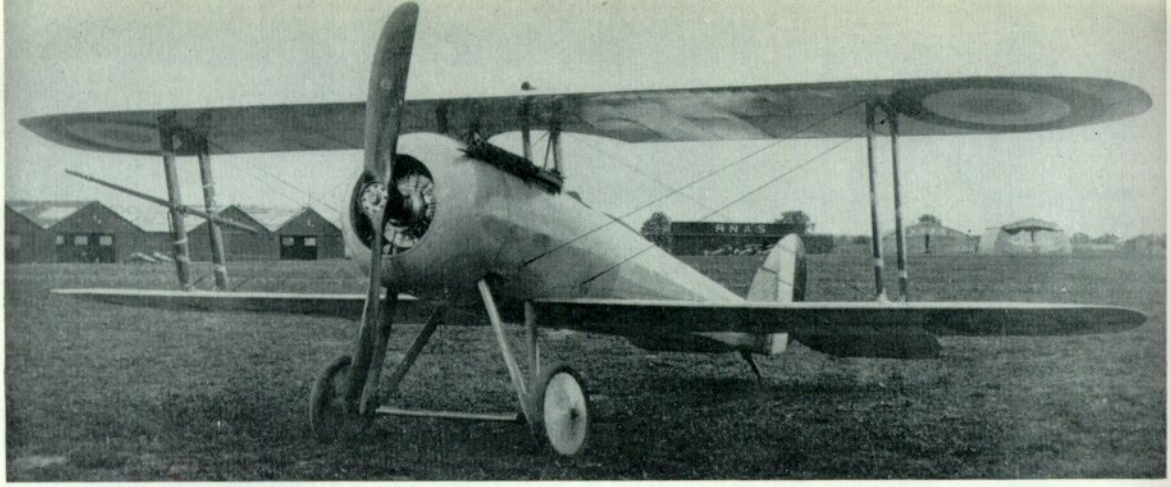
EVOLUTION OF THE DESIGN

The Nieuport 28, with its preceding and following models, is an excellent example of the step-by-step evolution of a single basic design to its point of ultimate development and then its transition into a new model to meet changing requirements. The first Nieuport to win fame as a fighter was the diminutive Model 11, a distinctive 80-h.p. sesquiplane. Both wings were nearly the same span, but the single-spar lower wing had less than half the chord of the upper and was therefore barely half a wing. This made the design a "Sesquiplane", or "1½ Winger", rather than a proper biplane. This basic configuration was retained for all production Nieuport models through the 27. There were minor variations in powerplant, seating, and wing area as determined by the mission of the particular model. The little Model 11 had only 13 square metres of wing area (140 sq. ft.) while some of the larger observation and trainer designs such as the Model 15 had 30 square metres (322 sq. ft.). Some-

Above, left: *The most famous fighting ancestor of the Nieuport 28—the Model 17.* (Photo: Signal Corps, U.S. Army). Right: *The beginning of the Nieuport 28—a modified Model 24 with 160-h.p. Gnôme engine and centre section struts altered to permit mounting of single Vickers machine gun outboard of the struts. New tail shape had appeared on Model 23.* (Photo: Nieuport)

Left: *Further evolution of the Model 28—a modified 24 with enlarged two-spar lower wing that increased the total wing area to eighteen square metres from the fifteen of the standard Model 24.* Right: *Original prototype of the Nieuport 28 with single machine gun and unique one-piece interplane struts.* (Photos: Nieuport)





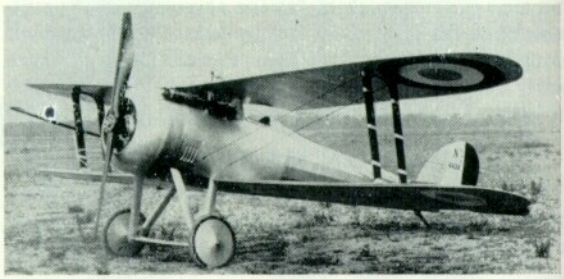
Prototype Nieuport 28 showing absence of dihedral on upper wing. (Photo: Nieuport)

times the different models, especially at training schools, were referred to by their areas, as "15-Metre Nieuport" for the Model 21 trainer. Since they were also referred to by their actual model numbers, some confusion existed since there was a "23-Metre" model and a Model 23 in service at the same place and time.

The basic design philosophy of the Nieuport firm *Société Anonyme des Etablissements Nieuport* was to achieve maximum manœuvrability with relatively low power through use of light and simple construction. Consequently, the air-cooled rotary engine was used in all but a few two-seat observation designs that had power requirements beyond what could be delivered by the relatively low-powered rotaries. The concept of lightness extended even to the armament. Nieuport fighters were normally armed with a single machine gun long after other manufacturers had standardised on two.

The major changes between the Model 11 of 1915 and the following V-strut fighter model, the 16, was the substitution of a 110-h.p. Le Rhône for the original 80-h.p. version. The greater weight of the new engine was a distinct handicap to the lightweight 11/16 airframe, which had been named "Bebe" because of its relative size. The next model, the 17 (detailed in *Profile* No. 49), used the same 110-h.p. engine but was built to higher load factors. To retain the light wing loading necessary for maximum manœuvrability, the wing area was increased to 14·75 square metres (158 sq. ft.). This was frequently referred to as a "15-Metre Nieuport" in the schools along with the following 21, 23, 24, and 27 models. The lines of the 17 were improved by use of a completely circular cowling around the engine which was faired smoothly into the sides of the fuselage. The Model 21 was the 17 airframe fitted with the 80-h.p. Le Rhône for advanced training purposes. Some had the open bottom cowling of the 11/16 while others had the closed version of the 17.

Three major changes that marked the beginning of the 28 design appeared on the Model 23. Wings, cowling, and undercarriage were identical to those of the 17/21, but the fuselage streamlining was improved by the addition of plywood formers and wooden longitudinal stringers that rounded it out. An entirely new shape was adopted for the horizontal stabiliser and elevators, and the traditional one-piece Nieuport rudder was replaced by a rudder of entirely new shape that was fitted to a vertical fin. The main purpose of this feature was to give the pilot better "feel" of the rudder function in flight. The models 24 and 27 were



Modified Nieuport 28 prototype, still with single-unit interplane struts but dihedral added to top wing by shortening centre section struts and bringing wing down to fuselage. (Photo: Nieuport)

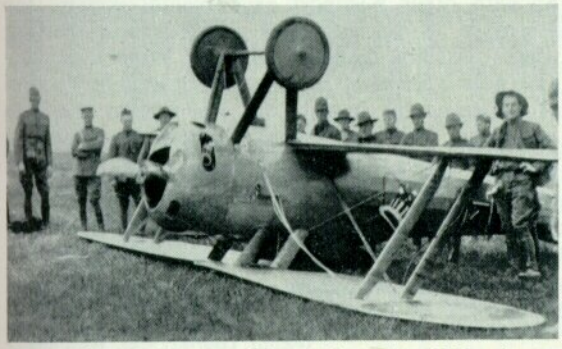
Nieuport 28 of 94th Pursuit Squadron forced down in enemy territory. Compare rudder striping with later models. Below: *A different view of the same machine. Apparently the Germans made a very hasty assembly for inspection purposes after bringing the machine to the rear area for the top wing is rigged with no dihedral while the lower wing droops.* (Photos: Official German)

outwardly identical to the 23, differing mainly in minor powerplant and equipment details. The exploits of the famous Charles Nungesser gave the 23 and 24 a measure of combat fame, but the major use of the 23, 24, and 27 was in the training schools. The British did use the 24 in combat, and even manufactured the design in England. The "24 bis" was a trainer from the start and used the older 17/21 tail surfaces on an otherwise standard 24 airframe. The 27 saw squadron service with both the French and Italians.

ENTER THE MODEL 28

Even before the 24s and 27s entered service, it was obvious that the basic V-strut sesquiplane design had reached the limit of its capabilities. One of the most obvious needs in a follow-on model was for increased wing area, since increased speed and rate of climb could best be obtained by using more powerful, and therefore heavier, powerplants. The first break with the sesquiplane tradition came with the installation of a larger two-spar lower wing on an experimental variant of a standard Model 24 that had been fitted with a new 160-h.p. Gnôme rotary engine. This increased the wing area to 18 sq. m. (193 sq. ft.). However, other changes were also needed to produce a good 160-h.p. fighter, so an entirely new prototype was built.

Early production Nieuport 28, serial number 6125, *in French markings and camouflage.* (Photo: Nieuport). Below: *Nieuport 28 of the 94th Pursuit Squadron on its back following a forced landing caused by engine failure, 18th April 1918. Note location of the squadron insignia.* (Photo: U.S. Army Signal Corps)



Late production Nieuport 28, serial number 6215, *showing correct form of U.S. tail striping.*
(Photo: U.S. National Archives)

THE PROTOTYPE

The model that eventually became the 28 followed the same basic construction as its predecessors, a wire-braced four-longeron wood fuselage with fabric covering, wood frame wings and tail, and aluminium-tube undercarriage. The tail surfaces were identical to those of the 23/24/27 and the deep-chord cowling matched that of the experimental 24 variant. The fuselage was almost four feet longer than that of the V-strutters, and the longitudinal stringers carried the rounded cross-section clear under the fuselage instead of leaving a flat bottom. Since the fuselage was the same depth as before, it had a considerably slimmer look. Instead of metal turtledeck and side panels in the nose-cockpit area, a material rather like fibreboard was used. In thinner gauge, this same material was used to cover the tail surfaces. The major design change was in the wings, both of which were now two-spar type, with the chord of the lower nearly matching that of the upper. Both were fitted with graceful elliptical wing tip bows in contrast to the angular raked tips of the V-strutters. Total area was 20 sq. m. (215 sq. ft.). The original version of the prototype had no dihedral on either wing. The interplane struts were not individual pieces but formed a single "box" or parallelogram that eliminated the need for incidence and stagger wires and supposedly simplified the setting-up of the machine. As on earlier models, the upper wing was built in two sections that joined over the fuselage centre-line at a point inboard of the centre-section struts. Testing soon determined that dihedral was necessary, so some was added to the upper wing by shortening the centre-section struts and leaving the outer box struts the same size. This dihedral was retained on production models, but the entire upper wing was raised by lengthening all struts in order to improve the pilot's forward visibility and also make room for an additional machine gun.

POWERPLANT

The powerplant was the new nine-cylinder Gnôme 9-N rotary engine of 160–170 "questionable horsepower", the first Gnôme used on a production Nieuport since the early versions of the Model 10 two-seater used the 80-h.p. version in 1914. The reliability of the Gnôme, whatever the model, was never outstanding, and the corresponding Le Rhône model was preferred. Some of the chronic troubles were supposed to have been taken care of in the 160-h.p. model, which featured dual ignition. Since rotary engines were not fitted with the standard carburettors of the fixed models and could not be throttled down, both the Le Rhônes and the Gnômes had a "Blip Switch", a cut-off button on the control stick, that enabled the pilot to switch the engine off for brief intervals when it was desired to reduce power, as for landing. The Le Rhônes could be throttled to a degree, from their wide-open speed of some 1,250

Photo taken 5th May 1918. 95th Aero Squadron, Toul, France. (Photo: U.S. Army Signal Corps)

r.p.m. down to about 900 r.p.m. This low speed was enough to keep a light machine like the Nieuport flying, hence the need for the "on-off" operation for landing. The Gnôme, on the other hand, could not even be throttled to this degree. In addition to the single "on-off" switch, it had additional buttons on the control stick that enabled the pilot to cut out one or more cylinders for continuous running at lower power. To prevent flooding, fouling of the spark plugs, and the danger of fire in the cowling from unburned fuel, it was necessary to switch all cylinders back on at frequent intervals. This practice produced a very distinctive sound.

The late model Gnômes, starting with the single-ignition nine-cylinder 100-h.p. model, were known as "Monosoupapes". This meant that each cylinder was fitted with only one valve instead of the traditional two. Earlier models had the exhaust valve in the cylinder head but the intake valve was in the top of the piston, where it worked automatically as a result of differing pressures in the cylinder and in the crank-case into which the air-fuel mixture had been drawn somewhat in the manner of the well-known two-stroke-cycle engine. This feature had been trouble-some, so the intake valve was eliminated on the "Monosoupape" models. The fuel was passed into the cylinder through bypass ports similar to those of the two-stroke engines. All Gnômes were wasteful of fuel because of the passage of a certain amount of fuel mixture into the cylinder on the non-firing part of the cycle. Discharge of this unburned mixture into the cowling created a serious fire hazard.

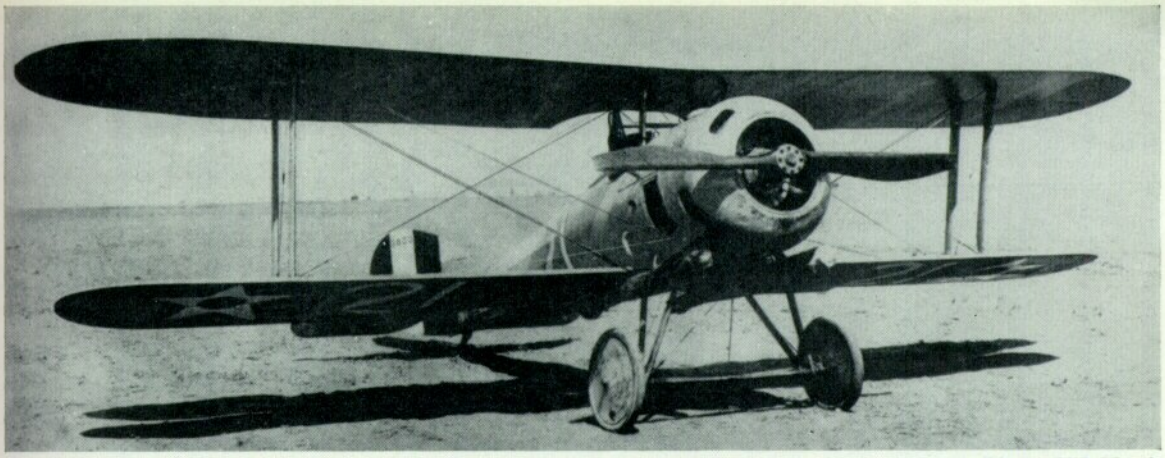
ARMAMENT

In its original form, the new model (not yet called 28) carried only a single Vickers ·303 machine gun out-board of the left centre-section struts. This was soon seen to be inadequate, so when the upper wing was raised on the production models, a second Vickers was placed on top of the fuselage and a bit to the left of the centre-line. Some model plans show a third gun outside of the struts on the right side, but this is erronious. While the standard guns were the British Vickers, some of the American squadrons used the American Marlin for short periods. Nieuport 28s used for balloon-strafing missions were sometimes fitted with a single 11-mm. Vickers in the inboard location. Such guns were usually armed with incen-diary ammunition.

DESIGNATION AND SERIAL NUMBERS

As with other Nieuport experimental designs, the prototype 28 did not carry a standard designation when it was first designed and built. While there may have been a company designation for each production or experimental model, the well-known numbers associated with the Nieuports and contemporary French aircraft designs are those assigned by the French Air Force in sequence of acceptance from the various manufacturers. Although logical, the number "28" did not actually identify the 28th design accepted

Left: *An unarmed training squadron Nieuport 28 of the A.E.F. with the letters HELLO JOE painted along the length of the fuselage.*
Right: *Another unarmed and uncamouflaged trainer with a painted serpent encircling the fuselage and the name of THEDA BARA, the leading film "vamp" of the period, lettered between the wings. Tail stripes painted out, but U.S. roundel still under upper wing.*
(Photo: courtesy Col. Wm. Guier)



U.S. Navy Nieuport 28 with flotation gear, star insignia, and reduced-size tail stripes. (Photo: U.S. Navy)

from Nieuport. Nieuport's own Model 10 was in service before the official system was adopted, so the official system started there.

The manufacturer was identified by a letter in the official system, "N" in the case of the Nieuports. This was to be painted in a fairly large size in black near the top of the white rudder stripe, and was to be followed by the model and type designation either adjacent to or below it. Nieuport was rather nonconformist, and generally skipped the model-type data, using only the serial number below the "N". The proper designation should be 28C-1, the 28 indicating the sequence of model procurement, the type letter "C" designating a "Chasse" (Pursuit) airplane, and the figure "1" that it was a single-seater. Nieuport sometimes used the model number on the rudder, but called it a "type" number and placed it near the bottom, as "Type 28". However, this lettering was widely used over the rest of the airplane in conjunction with the serial number. This was largely because the jigs and tooling of the time did not make for good interchangeability of major components. Parts were hand-fitted to each machine, and the ailerons of one might, but probably would not, fit another. Each removable component, therefore, carried both the Nieuport "Type" number and the serial number. For the 28, this was on the underside of each upper wing near the tip, in approximately the same location under the lower wing but with the numbers on the wing directly adjacent to those on the aileron, under the horizontal stabiliser and one elevator in adjacent positions, and on each side of the fuselage just beneath the leading edge of the horizontal stabiliser. These figures appeared in the following form:

6125
TYPE 28

The serial number indicated the sequence of procurement by the French Air Force from a particular manufacturer, not total aircraft procurement as in the case of U.S. and British systems. In the case of Nieuports, it was not a useful guide to sequence of models or to distinguish, say, late model 17s with rounded fuselages from the Model "24 bis". The prototype Model 28, after acceptance, carried serial number *4434*. A Model 23 flown by Nungesser carried serial number *5324*, a Model 24 carried *4445*, a 27 carried *6100*, and a late-production 21 trainer carried *7000*. The earliest known serial for a production 28 is *6125* and the earliest seen on an A.E.F. machine is *6189*. While the American services had their own serial numbering systems it was not applied to aircraft obtained from the Allies during the war. Even these Nieuport 28s taken to the United States by the Army after the Armistice continued to use the original French-assigned numbers. However, these turned over to the U.S. Navy were given new Navy serial numbers, *5794* through *5805*, for the 12 machines transferred.

MARKINGS AND COLOURING

The prototype and some production 28s were painted in the characteristic Nieuport silver-grey, but the

Left: *Beginning of the end—little trace of the original Model 28 remains in this experimental Nieuport powered with a 180-h.p. Gnôme fitted with a laminated wood fuselage that was soon to be seen on the production Model 29.* Right: *Further departure from the 28—a modified 28 fuselage fitted with wings of increased area, revised dihedral arrangement, and an 11-cylinder 200-h.p. Clerget rotary engine.* (Photos: Nieuport)

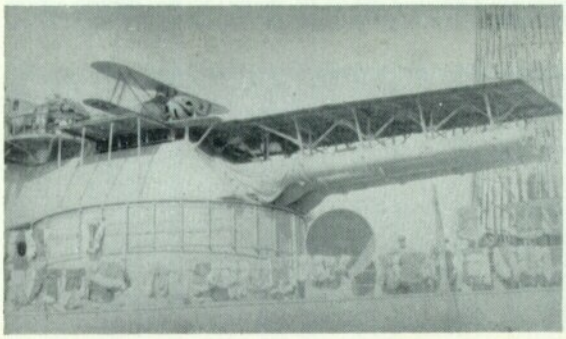
A post-war civilian conversion with an 80-h.p. Le Rhône engine. Although carrying French registration, this must have been an A.E.F. left-over because the "Lift Here" placards on the fuselage are in English. (Photo: SAFARA)

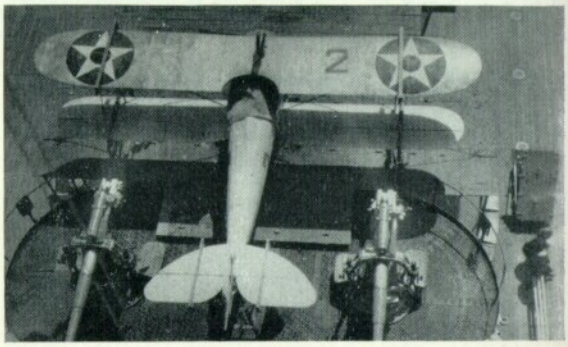
combat models used the standard French upper surface and side camouflage pattern of greens and browns with the undersurfaces of wings and tail clear-doped. The Nieuport V-strutters, along with a few other French near-sesquiplane designs, carried standard French roundels on the underside of the upper wing as well as on the top, and duplicated the undersurface application on the narrow-chord bottom wing. This practice became a Nieuport habit, for when new designs with wide-chord lower wings came along roundels were still carried under the upper wingtips. Early deliveries to the A.E.F. carried the American white-centre circles under the upper wing, but the practice was discontinued at American request. When Nieuports, V-strut models included, were re-covered or repainted at American bases, the roundels were not re-applied to the underside of the upper wing. Neither the French nor the Americans used roundels on the side of the fuselage in standard practice.

The earlier Nieuport models, without fixed vertical fin, applied the rudder stripes to the full width of the rudder. For the French and British, this put the red at the trailing edge. When the vertical fin was added on Model 23, old habits died hard and the stripes were again applied over the full width of the entire vertical surface. When the Americans adopted a new circular marking to replace the white star of 1917, they picked the old Russian marking, which had a red outer circle, a blue, and then a white centre. Russia had just been knocked out of the war, so this marking was available. Since the other Allies had their tail striping in the same sequence of colours as their wing and fuselage roundels, the French factories made a rather logical mistake in applying tail stripes to the original American orders. They put the tail stripes on in the order of red, blue, and white, starting at the trailing edge, when the new American striping order was actually blue, white, and red, starting at the rear. This rudder stripe reversal had been made to distinguish the American machines from the French and British, both of which started with red at the trailing edge of the rudder. The first two Squadrons of A.E.F. Nieuports went into action with this marking and the error was not corrected until later deliveries were made to the training schools.

Individual aircraft in the American squadrons were marked with large block numbers on each side of the fuselage and on the upper and lower wings. Application of the wing numbers was not consistent, sometimes being on the left wing and sometimes on the

Left: *U.S. Navy Nieuport 28 on gun turret of the battleship* Arizona. *Such use of airplanes, tried by French and British as well as U.S. Navies, was short-lived.* Right: *Top view of silver-painted Nieuport 28 on battleship* Arizona. *The original wartime roundels show through the post-war star-in-circle markings on the wings. Tail stripes on this particular model are still in the original Nieuport width.* (Photos: U.S. Navy)





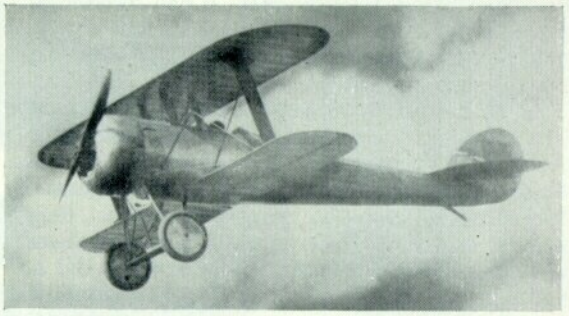
right, but the fuselage number was always aft of the squadron insignia. Two squadrons went into action without squadron insignia, which consisted of an Indian head for the 27th Squadron, an American "Hat-in-the-Ring" for the 94th, a kicking Army mule for the 95th, and a Scotty dog for the 147th. Squadron insignia was not authorised for pursuit squadrons until a particular squadron had won three victories or else had been given a specific citation for distinguished service by higher authority. On the Nieuports, the squadron insignia was carried on the fabric just aft of the cockpit.

The Nieuport 28s taken to the United States in 1919 were mostly repainted in the standard U.S. Army olive drab all over, the white stars replaced the roundels on the wings, and the tail striping was switched back to red at the trailing edge and reduced in size to cover only the rudder. The Navy machines likewise changed to the star and reversed tail stripes, but were repainted in the over-all light grey that was standard Navy colouring at the time. Photos indicate that at least one of the Navy-painted Nieuports carried the full-width rudder stripes for a while.

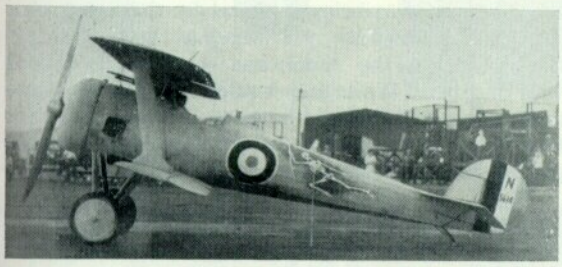
PRODUCTION

Although ordered into production by the French, the 28 did not prove to be a desirable combat type in spite of its performance gain over earlier models. Other designs, notably the Spad XIII (*Profile* No. 17) proved more suitable, and if it had not been for the extreme need of the A.E.F., Nieuport would have found itself out of the fighter plane business as far as its own designs were concerned. Some 297 28s were delivered to the Americans so that their pursuit squadrons could take to the air. The Spad was the better machine, but all production was committed to the French at the time. Even Nieuport, after completing Model 28 deliveries to the A.E.F., retooled its fighter line and delivered 700 Spad XIIIs.

The next production Nieuport—the Model 29. Laminated wood veneer fuselage had been tested on an earlier experimental model. The only Model 28 design feature carried over to this 300-h.p. model was the dihedral on the upper wing. (Photo: P. M. Bowers' collection)



Clipped-wing I*-strut civil Nieuport 28 used in the 1931 film "Dawn Patrol".* (Photo: R. R. Martin)



Nieuport 28 with further modifications used in the film "Lost Squadron". Rudder area has been reduced and shallow-chord cowling from a Thomas-Morse S-4C has replaced the deep-chord cowling, although the Gnôme engine has been retained. Marlin machine gun is improperly located. (Photo: P.M. Bowers' collection)

COMBAT USE

The entry of the A.E.F. into combat with its Nieuport 28s was anything but spectacular. Four squadrons of the First Pursuit Group used the 28—the 27th, 94th, 95th, and the 147th. The first to reach the front were the 94th and the 95th, which shared an aerodrome at Villeneuve. The 95th arrived first, at the end of

Non-flying Nieuports in the 1937 remake of "Dawn Patrol" Errol Flynn seated in the first machine, which has full-span wings and steel-tube N*-struts. David Niven in the second, with clipped wings and* N*-struts. Next are two clipped-wing* I*-strut 28s and then three Thomas-Morse S-4Cs. Lettering on tail of Flynn's machine copied from a Nieuport 24E-1 (E: Entrainment, or trainer) and then misread, for the full designation appears as "Nie 24EL" instead of E-1. Marlin guns above the wing are strictly Hollywood hokum.* (Photo: courtesy Walter Jeffries)

February 1918, and made its first patrol over the lines on 15th March. The planes had been delivered without guns, hence the delay in starting operations. Finally, in desperation, Major Raoul Lufbery, veteran of the Lafayette *Escadrille*, led an unarmed patrol to the lines on 15th March. This was strictly in the interest of squadron morale and to show that the Air Service, A.E.F., was finally ready for action. However, just at this time, someone discovered that the personnel of the 95th had not received any gunnery training, so the squadron was sent back to gunnery school and did not return to the front until 2nd May.

The 94th fared somewhat better. Although galled by the fact that the 95th had been the first to reach the front, the 94th made the first combat patrol and drew first blood. Like the 95th, it had received airplanes without guns and had made its first unarmed patrol on 6th March. The guns arrived on 13th April, but the squadron had received orders to transfer to Toul, so did not fly armed patrols from Villeneuve. The first armed patrol was made from Toul on 14th April 1918. Captain Peterson led a flight of three Nieuport 28s, the others piloted by Lt. Edward V. Rickenbacker and Lt. Reed Chambers. Foggy weather caused Peterson to turn back immediately after take-off. Rickenbacker and Chambers did not notice his departure (so they said) and continued the patrol alone but made no contact with the enemy. Just after this patrol returned to the aerodrome, two German single seaters, apparently lost in the poor visibility, appeared over the field. The two pilots of the second patrol, Lt. Alan Winslow and Lt. Douglas Campbell, jumped into their waiting Nieuports and gave chase. Winslow scored the first victory for the A.E.F. by shooting down a Pfalz DIII in flames while Campbell, who was also destined to become America's first Ace, forced an Albatros DVa to crash-land minutes later.

While a great morale-builder, this victory did no particular credit to the Nieuport 28. The Germans were the victims of surprise more than anything else, and even if there had been a dog-fight, the Pfalz and Albatros were both 1917 models that were becoming second-class equipment at the time. In addition to being outclassed as a fighter by the new German Fokker DVII (*Profile* No. 25) that reached the front shortly after the Americans, the Nieuport 28 had other shortcomings. Aside from the troublesome Gnôme engine, the 28 had a tendency to shed its upper wing fabric during an extended dive. Sometimes this took all the ribs ahead of the front spar with it. Lt. Jimmy Meissner was the first to encounter the problem. During a fight with two Albatros DVa's on 2nd May, he managed to shoot one down after chasing it through a long dive. During his pull-up, he noticed the fabric stripping off the left upper wing and starting to repeat the process on the right wing. He nursed the crippled machine back across the lines and crash-landed it in the American forward area. The same thing happened to him again during a loop in a dogfight at 4,000 ft., but this time he managed to fly the machine all the way home. The same characteristic was responsible for the capture of Lt. James Norman Hall, a former Lafayette *Escadrille* pilot attached to the 94th squadron. (He later became a world-famous author, not only of W.W.I flying books but the notable "Mutiny on the Bounty".) Loss of fabric during a dive forced him to crash-land in German territory. The Nieuport flipped on to its back and Hall was a prisoner for the duration. Eddie Rickenbacker, too, who was to become America's Ace-of-Aces, flew a Nieuport 28 home sans upper wing fabric. By the time a suitable fix was developed, the Nieuport was being replaced by the Spad XIII. This was on 17th July 1918. Much as they had cursed the Nieuports, the Americans were not overjoyed with the Spads. While they would hold together under any treatment that could be given them, they did not have the manœuvrability of the Nieuports and the geared Hispano-Suiza engine was almost as great a

Clipped-wing Nieuport 28 with I-struts currently owned and flown by Tallmantz Aviation of Santa Ana, California. Indian head insignia is supposed to represent Lafayette Escadrille (which did not use 28s) and tail stripes are confined to rudder only.
(Photo: Lee Enich)

Restored Nieuport 28 with standard wings and struts owned and flown by Cole Palen of Old Rhinebeck, New York. Markings are authentic, but machine is not camouflaged. Note how far propeller hub projects ahead of shallow-chord Thomas-Morse cowling.
(Photo: E. M. Sommerich collection)

source of trouble as the Monosoupape Gnôme had been.

In spite of maintaining a favourable ratio of victories to losses, the American squadrons suffered some notable losses. Lt. Quentin Roosevelt of the 95th, son of former president Theodore Roosevelt, fell to the guns of a Fokker DVII on 14th July 1918, and Lufbery himself, with 18 confirmed victories and probably as many more scored deep in enemy territory where they were unconfirmed, was shot down right over the Toul Aerodrome on 19th May. He had taken off to engage a German two-seater. In the combat, his machine was hit and set afire. In spite of his oft-proclaimed intention to try and ride a "flamer" down, he chose to jump at low altitude when it became obvious that he could not land his blazing machine.

POSTWAR USE

Twelve of the 50 or more Nieuport 28's brought to the U.S. in 1919 were turned over to the U.S. Navy, which put them to a most unique use—they were flown from platforms built over the forward turret guns of battleships. Their light weight and quick acceleration suited them for this mission. Because of the possibility of a water landing, some of these machines were fitted with hydrovanes ahead of the undercarriage to keep them from nosing over and with flotation gear that could be inflated by compressed air after landing to keep them afloat. The Army models saw short service as trainers and were then scrapped.

A few, however, found their way into the hands of civilian owners and began a new career. Some were apparently used for racing, for their wing spans were decreased by five feet and the parallel wing struts were replaced by a single L-strut. By the late 1920's, air-war movies were becoming increasingly popular, and many W.W.I vintage aircraft were taken to Hollywood to perform before the cameras. Unfortunately, many were deliberately destroyed in crash scenes. At least five of the Nieuport 28's, including three clipped-wing L-strut models, one clipped-wing model with steel-tube N-struts, and a full span model also with N-struts, appeared in numerous pictures. The last film in which this many appeared together was the original production of "Dawn Patrol", made in 1931. Four of the five appeared in the remake of 1937, but were used only in ground scenes, the flying scenes involving actual old airplanes being re-runs of the 1931 footage.

One Nieuport remains in Hollywood in flyable condition, the clipped-wing N-strut model, owned by Tallmantz Aviation at Orange County Airport, Santa Ana, California. Two of the clipped-wing I-strutters in "Basket Case" condition are also owned by the firm. The long-wing version was traded to Cole Palen of Old Rhinebeck, New York, for other machines needed in the 1957 movie "Spirit of St. Louis". Mr. Palen has since restored this 28 to flyable condition and has reverted to the original parallel wood struts. One unmodified model, formerly on display in the Jarret Museum of W.W.I history but now in "Basket Case" condition, is owned by Mr. Ned Kensinger, who hopes eventually to restore it. One other Nieuport 28 is rumoured to exist in the United States, but no others are known outside of that country.

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NIEUPORT 28 SPECIFICATIONS

Wing span (upper and lower) ...	26 ft. 3 in.
Length	20 ft. 4 in.
Wing area... ...	215 sq. ft.
Empty weight ...	1,172 lb.
Gross weight ...	1,625 lb.
Stagger	23 in.
Dihedral	1 deg. 10 min.
Powerplant ...	Gnôme 9-N, 165-h.p. at 1,380 r.p.m.
Wing loading ...	7·6 lb. per sq. ft.
Fuel capacity ...	30 U.S. gallons
Oil capacity ...	5 U.S. gallons
Top speed... ...	122 m.p.h.
Landing speed ...	53·7 m.p.h.
Rate of climb ...	5,000 ft. in 4·5 min. 10,000 ft. in 11·5 min.
Endurance... ...	1 hr. 30 min.
Service ceiling ...	17,000 ft.
Standard armament	Two ·303 Vickers M.G.

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Printed by Hills & Lacy Ltd., London and Watford, England. U.S. 2nd Class Mailing Rates applied for.

Nieuport 28, 95th Aero Squadron, A.E.F. France.

95th Squadron.

213th Squadron.

Nieuport 28, 147th Aero Squadron, A.E.F. France.

147th Squadron, Motto "Who Said Rats".

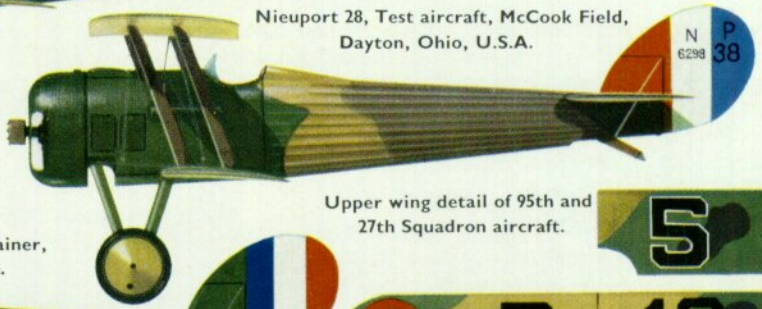
Nieuport 28 Trainer, 213th Squadron, A.E.F. France.

213th Squadron variation.

A.E.F. roundel, six positions on 27th, 95th and 147th Squadron aircraft. 213th Squadron four positions only.

Nieuport 28, 27th Aero Squadron, A.E.F. France.

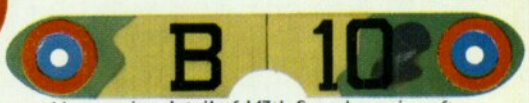
Nieuport 28, Test aircraft, McCook Field, Dayton, Ohio, U.S.A.



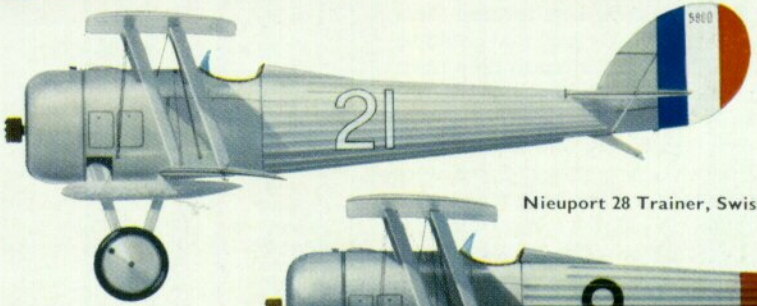
27th Squadron.

Upper wing detail of 95th and 27th Squadron aircraft.

Nieuport 28 Trainer, 1921 scheme.



Upper wing detail of 147th Squadron aircraft.



Nieuport 28, Combat Squadron Three, VF-2, 1921. U.S. Navy. Flotation bags stowed. Serial 5800.

U.S. Navy, four positions.

Nieuport 28 Trainer, Swiss Air Force.

Wing detail for 5800. "21" in four positions, port and starboard upper, port and starboard undersurfaces.

Swiss National insignia, four positions.

©WARD